

~~an A/D converter to convert an input analog image signal into digital image data;~~

~~a black level setting mechanism to set a black level of the digital image data by adjusting a lower-limit reference voltage of the A/D converter;~~

~~a blank data generator to generate blank data to display a blank area around an image display area on a screen, the black level of the blank area being independent of the black level of the digital image data area;~~

~~an image data combiner to combine blank data generated by the blank data generation mechanism and digital image data output from said A/D converter; and~~

~~a display to display an output of the image data combiner on said screen.~~

2. (Amended) An image display apparatus according to claim 1, said black level setting mechanism comprising a variable resistor.

3. (Amended) An image display apparatus according to claim 1, said black level setting mechanism comprising an illuminance sensor to detect the illuminance around a video camera that outputs said analog image signal.

5. ~~(Amended) A method of displaying an image comprising:~~
~~adjusting a black level of digital image data such that a black level of an image display area is different from a black level external to the image display area; and~~
~~displaying an image from the digital image data in the image display area.~~

6. (Amended) The method of displaying an image according to claim 5, further comprising:
converting an input analog image signal into digital image data;
adjusting a lower-limit reference voltage of the digital image data thereby adjusting the black level of the digital image data;
generating blank data to display a blank area around an image display area on a screen in which the black level of the blank area is independent of the black level of the image display area;
~~combining the blank data generated and digital image data output; and~~

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displaying the combination of the blank data generated and digital image data output on the screen.

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10. (Amended) ~~A method of displaying an image comprising:~~
converting an input analog image signal into digital image data;
adjusting a lower-limit reference voltage of the digital image data thereby
setting a black level of the digital image data;
generating blank data to display a blank area around an image display area on a screen in which the black level of the blank area is independent of the black level of the image display area;
combining the blank data generated and digital image data output; and
displaying the combination of the blank data generated and digital image data output on said screen.

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14. (New) The image display apparatus according to claim 1, further comprising a blanking marker signal corresponding to a single pixel between the blank area and the image display area such that a white line is vertically displayed on the screen which separates the blank area and the image display area.

15. (New) The method according to claim 5, further comprising separating the blank area and the image display area on the screen by a white line of a single pixel corresponding to a blanking marker signal.

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16. (New) The method according to claim 10, further comprising further comprising separating the blank area and the image display area on the screen by a white line of a single pixel corresponding to a blanking marker signal.

Summary

Claims 1-13 were pending. Claims 1-3, 5, and 10 have been rewritten and Claims 14-16 were added. No new matter has been added as a result of this amendment.

Rejection of Claims

In the Office Action, Claims 1-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sato (U.S. Patent 6,249,362) in view of Tsujihara (U.S. Patent 5,504,538). Applicants traverse the rejection. Nevertheless, Applicants have amended Claims 1-3, 5, and 10 to further clarify the invention to which the claims are directed. Applicants submit that pending Claims 1-16 are patentable over the prior art cited by the Examiner.

Amended Claim 1 recites an image display apparatus that comprises an A/D converter, a black level setting mechanism, a blank data generator, an image data combiner, and a display. The A/D converter converts an input analog image signal into digital image data. The black level setting mechanism sets the black level of the digital image data by adjusting a lower-limit reference voltage of the A/D converter. The blank data generator generates blank data. The blank data is used to display a blank area around an image display area on a screen. The image data combiner combines the blank data and digital image data. The resulting data is displayed on the display. In this manner, even if correction of the black level is necessary for data to be displayed in the digital image data area, the black level of the blank area is not changed. This is to say that the black level in the blank area is independent of the black level of the digital image data area, that is the luminance in the digital image data area may be changed without altering the luminance of the blank area.

Neither Sato nor Tsujihara anticipate or suggest such an arrangement. Sato discloses that the A/D converter converts an input analog image signal into digital image data, which is processed using the conventional gamma corrections to alter the black level or luminance in the digital image data. Sato discloses nothing about generation of blank data or combining this blank data with image data. While Tsujihara discloses adding blank data to form a blank area, however, Tsujihara exemplifies the conventional approach in which the blank data is first added to the image data and then the black level of both is altered [specifically, the brightness reference (7) is added (5) to the video signal (2) and the total data adjusted (1) by the amplifier (6), while the black level is controlled (12) by a comparison (11) between a black reference (REF) that does not change and the brightness reference (7). The black level is at a particular level